

MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for July 1899, is based on reports from about 3,000 stations furnished by paid and voluntary observers, classified as follows: regular stations of the Weather Bureau, 154; West Indian service stations, 10; cotton region stations, 127; corn and wheat region stations, 133; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,220; Army post hospital reports, 27; United States Life-Saving Service, 14; Southern Pacific Railway Company, 96; Canadian Meteorological Service, 32; Mexican Telegraphic Service, 20; Mexican voluntary stations, 7. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; the Director of the Central Meteorological and Magnetic Observatory of Mexico; Señor A. M. Chaves, Director-General of

Mexican Telegraphs; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; and Capt. J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

No storm-signal orders or special storm warnings were issued for the United States or the West Indies during July, 1899, and no general storms of marked violence occurred within the region of observation. The month was also notably free from severe local disturbances, the most important storms of this class occurring in Nebraska, Iowa, and Wisconsin during the afternoons of the 5th and 6th.

On the 11th announcement was made by the forecast official at Portland, Oreg., that the summer type of weather, with its hot and dry north to northeast winds, had set in for the States of Oregon, Washington, and Idaho. As this type of weather is liable to injure grain east of the Cascades, the announcement was an important one to farmers and merchants. Remarks regarding the value of the river forecasts issued at Portland, Oreg., during the month will be found under the heading "Portland, Oreg., Forecast District."

In the San Francisco district no signals were displayed and no special warnings were issued. Showers which occurred in Arizona on the 10th were generally forecast, and forecasts for rain in southern California and Arizona were made for the benefit of transportation companies.

CHICAGO FORECAST DISTRICT.

There were no severe storms on the upper Lakes during

the month of July, and consequently no wind-signal warnings were issued.

The Chicago district during the month of July was also remarkably free from destructive local disturbances as the only storms of this character noted occurred in Nebraska, Iowa, and Wisconsin on the afternoons of the 5th and 6th, which was during the passage of a low pressure area that crossed the Rocky Mountains in Colorado on the morning of the 5th, and then slowly moved easterly over Nebraska and Wisconsin, to finally disappear four days later off the New England coast.

Showers and thunderstorms were forecast on the 5th and 6th for the States in which these destructive storms occurred.—*E. A. Beals, Inspector.*

PORTLAND, OREG., FORECAST DISTRICT.

No signal orders and no frost warnings were issued during the month.

The first summer type of weather conditions was not announced until the 11th inst., and since that date fairly pure types have prevailed. The value of such announcement has been proved this year by frequent requests by farmers and others for information on this subject. Many persons have become educated to an understanding of the term and the